FlyBy Math™ Alignment
California Mathematics Content Standards

Algebra and Functions

1.0 Students use variables in simple expressions, compute the value of the expression for specific values of the variable, and plot and interpret the results:

Mathematics Content Standard	***FlyBy Math*™ Activities**
1.1 Use information taken from a graph or equation to answer questions about a problem situation	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
1.5 Solve problems involving linear functions with integer values; write the equation; and graph the resulting ordered pairs of integers on a grid.	--Represent distance, speed, and time relationship for constant speed cases using linear equations and a Cartesian coordinate system. --Plot points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system to describe the motion of two airplanes.

Statistics, Data Analysis and Probability

1.0 Students display, analyze, compare, and interpret different data sets, including data sets of different sizes:

Mathematics Content Standard	***FlyBy Math*™ Activities**
1.2 Organize and display single-variable data in appropriate graphs and representations (e.g. histogram, circle graphs) and explain which types of graphs are appropriate for various data sets.	--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.
1.5 Know how to write ordered pairs correctly; for example, *(x,y)*	--Plot points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system to describe the motion of two airplanes.

Mathematical Reasoning

1.0 Students make decisions about how to approach problems:

Mathematics Content Standard	***FlyBy Math*™ Activities**
1.1 Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, sequencing and prioritizing information, and observing patterns.	--Apply mathematics to predict and analyze aircraft conflicts and validate through experimentation.

2.0 Students use strategies, skills, and concepts in finding solutions:

Mathematics Content Standard	***FlyBy Math*™ Activities**
2.1 Use estimation to verify the reasonableness of calculated results.	--Predict the relative motion of two airplanes on given paths.

2.2 Apply strategies and results from simpler problems to more complex problems.	--Compare airspace scenarios for both the same and different starting conditions and the same and different rates.
2.3 Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes. --Predict outcomes and explain results of mathematical models and experiments.
2.4 Express the solutions clearly and logically using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes. --Predict outcomes and explain results of mathematical models and experiments.
2.6 Make precise calculations and check the validity of the results from the context of the problem.	--Apply mathematics to predict and analyze aircraft conflicts and validate through experimentation.
3.0 Students move beyond a particular problem by generalizing to other situations:	
Mathematics Content Standard 3.1 Evaluate the reasonableness of the solution in the context of the original situation.	***FlyBy Math*™ Activities** --Apply mathematics to predict and analyze aircraft conflicts and validate through experimentation.
3.2 Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.	--Predict outcomes and explain results of mathematical models and experiments.
3.3 Develop generalizations of the results obtained and apply them in other circumstances.	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.